

REMARKS

This paper is being provided in response to the March 10, 2006 Office Action for the above-referenced U.S. patent application. In this response, Applicants have made minor modifications to the specification and amended claims 1, 2, 4, 5, 10, 11, and 14 in order to clarify that which Applicants deem to be the invention. Applicants respectfully submit that the modifications to the specification do not add new matter and that amendments to the claims are supported by the originally filed application.

In response to the objections to the specification, Applicants have made modifications herein in accordance with the guidelines set forth in the Office action. Accordingly, Applicants respectfully request that these objections be withdrawn.

In response to the objections to the claims, Applicants have modified the claims herein in accordance with the guidelines set forth in the Office action. Accordingly, Applicants respectfully request that this objection be withdrawn. With respect to item 12, Applicants note that data from the remote storage device is not necessarily read into the cache of the local storage device. Rather, the local storage device reads data stored on the remote storage device while using the cache of the local storage device in connection with transferring data from the local storage device to the remote storage device. This is discussed in more detail in connection with the discussion below of the present claims and the prior art rejections. Accordingly, Applicants respectfully request that this objection be withdrawn.

The rejection of claims 10-18 under 35 U.S.C. 101 as being directed to non-statutory subject matter has been addressed by claim amendments provided herein in accordance with the guidelines set forth in the Office Action. Accordingly, Applicants respectfully request that this rejection be withdrawn.

The rejection of claims 1, 6, 10, and 15 under 35 U.S.C. 102 (b) as being anticipated by U. S. patent number 5,901,327 to Ofek (hereinafter “Ofek”) is hereby traversed and reconsideration thereof is respectfully requested in view of amendments to the claims provided herein.

Claim 1, as amended herein, is for a method of using a local storage device to read desired data while the data is being stored on a remote storage using the cache of the local storage device in connection with transferring chunks of data from the local storage device to the remote storage device. If the desired data is entirely in a cache of the local storage device, the local storage device returns the data from the cache. If the desired data is not entirely in the cache of the local storage device, data is read from the remote storage device to the local storage device and the local storage device merges the data from the remote storage device with data from the cache of the local storage device at the local storage device. Claim 6 depends from claim 1.

Claim 10, as amended herein, is for computer software, stored in a computer-readable medium, that reads desired data while the data is being stored on a remote storage device using the cache of the local storage device in connection with transferring chunks of data from a local storage device to the remote storage device. The software includes executable code that returns the data from the cache if the desired data is entirely in a cache of the local storage device and

executable code that reads data from the remote storage device to the local storage device and merges the data from the remote storage device with data from the cache of the local storage device at the local storage device if the desired data is not entirely in the cache of the local storage device. Claim 15 depends from claim 10.

The present claimed invention provides a mechanism for reading data from a remote storage device while the data is being transferred from the local storage device to the remote storage device. The present claimed invention reads data being transferred to the remote storage device by first checking if the data is in the cache of the local storage device and, if the data is available there, obtaining the data from the cache of the local storage device. Thus, the present claimed invention reads data being stored on the remote storage device without having to always obtain the data from the remote storage device since, in some cases, data being stored on the remote storage device is in the cache of the local storage device.

Ofek discloses a system and method for automatically providing and maintaining a copy or mirror of data stored at a location remote from the main or primary storage device. Data is retrieved from a remote device through a host data processing system. The host 12 writes data to and reads data from the primary data storage system 14. The host central processing unit 212 can also be provided with host remote mirroring software 213 so that the data processing system can be configured and monitored from a user interface of the host central processing unit. Host application programs can also interface with the remote mirroring facility of the data storage systems 214, 246 via the host remote mirroring software 213. During a read access, the channel adapter accesses the cache. If the data requested by the host is not found in the cache, the data is fetched by a disk adapter from the disk storage in the data storage system and loaded into the cache. Column 14 beginning at line 43 of Ofek discloses that, *under the abnormal condition of*

the data being entirely absent from the data storage system due to a disk drive failure, requests for data access to a primary volume (R1) can be satisfied by obtaining the requested data from the secondary volume (R2) in the remote data store system.

Thus, Ofek discloses that data that may be obtained from the cache of the local storage device or, if the data is not available in the cache of the local storage device, may be obtained from a disk drive of the local storage device. Ofek also discloses that, in instances where the local storage device has failed, the data may be obtained from the remote storage device.

Applicants respectfully submit that Ofek does not show, teach, or suggest features recited in independent claims 1 and 10, including the feature of merging data from the remote storage device with data from the cache of the local storage device at the local storage device. In the first place, Ofek discloses obtaining data from remote storage device only in the "abnormal condition" of the primary (local) storage device having failed, in which case they would be no data in the cache of the local storage device to be merged with the data from remote storage device as recited in the present claims. Secondly, since Ofek does not disclose obtaining data from the remote storage device *while* transferring data from the local storage device to the remote storage device, there would never be any reason in Ofek to merge data from the remote storage device with data provided in the cache of the local storage device as recited in the present claims.

Furthermore, Ofek specifically discloses that if the data is not in the cache of the local storage device, the data is obtained from the *disk* of the local storage device. In contrast, the present claims recite that if the data is not in the cache of the local storage device, the data is

obtained from the *remote storage device* and then merged with data from the cache of the local storage device.

Accordingly, for reasons set forth above, Applicants respectfully request that this rejection be withdrawn.

The rejection of claims 2, 7-9, 11, and 16-18 under 35 U.S.C 103(a) as being unpatentable over Ofek in view of U.S. patent number 6,880,045 to Pong et al. (hereinafter “Pong”) is hereby traversed and reconsideration thereof is respectfully requested.

Claims 2 and 7-9 depend from claim 1, discussed above. Claims 11 and 16-18 depend from claim 10, discussed above.

The Ofek reference is discussed above.

As set forth in the Office Action, Pong teaches prior to reading data from the remote storage device to the local storage device, creating a temporary storage device at the local storage device if there is data from the local storage device that is to be read.

Applicant respectfully submits that the deficiencies of Ofek with respect to claims 1 and 10, discussed above, are not overcome by the addition of the Pong reference. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

The rejection of claims 3-5, and 12-14 under 35 U.S.C 103(a) as being unpatentable over Ofek and Pong and further in view of U.S. patent number 6,012,063 Bodnar et al. (hereinafter “Bodnar”) is hereby traversed and reconsideration thereof is respectfully requested.

Claims 3-5 depend from claim 1, discussed above. Claims 12-14 depend from claim 10, discussed above.

The Ofek and Pong references are discussed above.

As set forth in the Office Action, Bodnar teaches having a temporary storage area that is a scratch slot.

Applicant respectfully submits that the deficiencies of Ofek (and Pong) with respect to claims 1 and 10, discussed above, are not overcome by the addition of the Bodnar reference. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
MUIRHEAD AND SATURNELLI, LLC



Donald W. Muirhead
Registration No. 33,978

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Muirhead and Saturnelli, LLC
200 Friberg Parkway, Suite 1001
Westborough, MA 01581
508-898-8601 (main)
508-898-8602 (fax)